Translation

PCT Application
PCT/JP2003/003714

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

10/509652

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TEL-1502PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP03/03714	International filing date (*day/month/year*) 26 March 2003 (26.03.03)	Priority date (*day/month/year*)
International Patent Classification (IPC) or national classification and IPC C23C 16/52, H01L 21/205, H05L21/3065		
Applicant GOTO, Toshio		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
28 July 2003 (28.07.03)	06 November 2003 (06.11.2003)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP03/03714

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☐ the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-17	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-17	NO
Industrial applicability (IA)	Claims	1-17	YES
	Claims		NO

2. Citations and explanations

Document 1: Micro Hoden Kogen o Mochiita Plasma Kyushu Bunko Keisoku (AKIHIRO KONO, ET AL.), Journal of Plasma and Fusion Research, May 2000, Vol. 76, No. 5, pages 460-464
Document 2: JP, 6-293960, A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.), 21 October 1994
Document 3: JP, 3162623, B2 (TOKYO ELECTRON LTD.), 23 February 2001
Document 4: JP, 4-53947, B2 (NIPPON STEEL CORPORATION), 28 August 1992
Document 5: JP, 4-81132, B2 (PRESIDENT OF HOKKAIDO UNIVERSITY), 22 December 1992
Document 6: JP, 10-83893, A (SONY CORPORATION), 31 March 1998
Document 7: JP, 62-54871, B2 (DIRECTOR GENERAL, AGENCY OF INDUSTRIAL SCIENCE AND TECHNOLOGY), 17 November 1987

(1) The subject matter of claims 1~3, 16, and 17 does not involve an inventive step on account of document 1 cited in the ISR. Document 1 pertains to a plasma process, and says that knowing the absolute density of active species is important in controlling the plasma, and describes irradiating the plasma atmosphere with ultraviolet light and measuring the absolute density of active species from the attenuation of the ultraviolet light. Creating the processing device described in claims 1 through 3 based on this technical means could easily be conceived by a person skilled in the art.

(2) The subject matter of claims 4 and 5 does not involve an inventive step on account of document 1. Providing a plurality of measurement routes in order to know the distribution of the absolute density of active species in plasma could easily be conceived by a person skilled in the art. Further, using frequency division when providing this plurality of measurement routes does not appear to require any particular inventive ideas.

(3) The subject matter of claims 6 and 7 does not involve an inventive step on account of documents 1 through 4 cited in the ISR. It is obvious that a window for the transmission of ultraviolet light is needed in the processing device. Also, preventing condensation on the window when doing so by giving it a heated constitution or using a tubular structure, as described in documents 2 through 4, could easily be conceived by a person skilled in the art.

(4) The subject matter of claims 8 through 11 does not involve an inventive step on account of document 1 and documents 5 through 7 cited in the ISR. Providing a plasma temperature measurement means in the plasma processing device and controlling plasma process parameters is described in documents 5 through 7; therefore, providing a plasma temperature measurement means in addition to a means of measuring the absolute density of active species does not appear to require any particular inventive ideas for a person skilled in the art. Also, measuring plasma temperature from the light source's attenuation spectral pattern and using the chopper method are described in document 5. Moreover, measuring plasma temperature based on atomic light-emission intensity is described in document 6.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V:

(5) The subject matter of claims 12 and 13 does not involve an inventive step on account of document 1 and documents 5 through 7. Providing a plurality of measurement routes in order to know the plasma temperature distribution could easily be conceived by a person skilled in the art. Also, using frequency division when providing this plurality of measurement routes does not appear to require any particular inventive ideas.

(6) The subject matter of claims 14 and 15 does not involve an inventive step on account of documents 1 through 7 cited in the ISR. It is obvious that a window for the transmission of light is needed in the processing device. Also, preventing condensation on the window when doing so by giving it a heated constitution or using a tubular structure, as described in documents 2 through 4, could easily be conceived by a person skilled in the art.